Algorithms of oppression: How search engines reinforce racism, by Safiya Umoja Noble, New York, New York University Press, 2018, 256 pp., $28 (paperback), ISBN: 9781479837243

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What can possibly be more mundane than a Google search? We use the search engine countless times day in day out, allowing it to classify, retrieve, rank and order the information we request. Trusting its efficiency, we rarely look behind the first page of results. Even more rarely do we stop to consider the consequences that this automated gatekeeping might have for our knowledge. With everybody 'googling' away, both personal and institutional decision-making is increasingly based on the algorithmic provision of information; the development which has profound societal consequences. Yet, we are quick to assume that as a mundane technology, which has already become an essential part of our daily routine, the search is neutral, transparent and harmless. Safiya Umoja Noble's book, *Algorithms of Oppression*, demonstrates in a way that is at once poignant, powerful and deeply unsettling that algorithmic search is anything but benign.

The ambition of *Algorithms of Oppression* is to launch a black feminist technology studies (BFTS) approach to internet research that draws on frameworks such as critical race theory and intersectional feminism. Noble theorises BFTS as 'an epistemological approach to researching gendered and racialized identities in digital and analog media studies' (pp. 171-2). The starting point of this critical effort is an obvious assertion, easily overlooked by the techno-centric and -optimistic discourses, that 'mathematical formulations to drive automated decisions are made by human beings' (p. 1). As such, they are prone to reproduce and disseminate the already present social biases as well as potential individual prejudices of their programmers, be it conscious or not. With this in mind, Noble's book works, firstly, to render visible how search algorithms contribute to the perpetuation of the established oppressive power relations and, secondly, to situate the 'algorithmic oppression' in the historical, social and economic context. In her investigation, Noble concentrates on the 'algorithmically driven data failures that are specific to people of color and women' (p. 4). The six chapters of the book meticulously demonstrate that racism and sexism have become, even if not purposefully, part and parcel of the everyday technological language and infrastructure.

In Chapters 1 and 2, which jointly constitute the bulk of the book, Noble firstly positions herself epistemologically as a member of the community that falls victim to the algorithmic oppression. Her 'googling' of 'Black women' revealed an arsenal of sexualised and pornified misrepresentations that hark back to racist stereotypes such as Jezebel, Mammy and

Sapphire. Noble then moves on to situate racist and sexist representations in the social context by discussing their negative implications for marginalised communities who usually lack resources to exercise control over the way they are portrayed and whose social status is determined primarily through their affiliation to those oppressed groups. The misconstrued, ill-informed and untruthful representations have a negative bearing on the racialised people's position on the housing and labour markets as well as causing the exaggerated assessment of their 'criminality'. Noble also documents how the purportedly colour-blind tech corporations shun responsibility for replicating harmful representations and consistently refuse to 'interfere' with their algorithms.

Chapters 3 and 4, in their turn, further contextualise the algorithmic oppression by means of concrete and very poignant empirical examples. The former chapter looks at the case of a mass shooter who allegedly formed his racist views based on fake information about 'black on white crimes' available on the 'cloaked websites' that Google search retrieved for him. The latter chapter zooms in on how the tech platform's tendencies never to forget the uploaded content and to circumvent privacy rights impinge on individual lives, sometimes precluding the possibility of moving on from the past.

The next two chapters are oriented towards the future, while being firmly anchored in the historical context. Chapter 5 offers a fascinating discussion on the uncanny semblance between the algorithm-driven content classification and the traditional library classification systems, both of which can be linked to racism and sexism as the classificatory views geared towards reproducing the already existing power relations. Given the impossibility of accessing the actual code, being as it is propriety, this analogy works beautifully to illustrate that bias is as embedded in the algorithmic search as it is in any other system of classification.

With this in mind, Chapter 6 foregrounds the importance of public policy in regulating the algorithmic information management and decision-making. Noble's normative standpoint on the informal and unofficial practice of reassigning information curation and provision from public institutions to corporate search engines is this: information, and access to it, is a public good, which must not be monetised or mediated by commercial interests. Finally, the Conclusion imagines how a non-commercial search could look, and the Epilogue ties the algorithmic power to the political quake caused by the 2016 US presidential election.

In addition to denouncing the replication of racism and sexism by search engines, Noble convincingly locates it in the context of neoliberal political economy. She deconstructs the idea that the page-ranked search results are served to users through a credible and efficient process of retrieving most relevant information. Instead, the results produced by commercial search engines reflect, and cynically advance, both advertising interests and existing power relations. Thus, Google, its parent company Alphabet and other technology giants choose to exploit, or at least turn a blind eye to, racism and sexism in a ceaseless pursuit of corporate profit. Unlike the libraries, which serve public interest and as such can gradually be forced to introduce changes to the offensive classification practices, the tech platforms are governed by capital, which uses freedom of speech to shield corporate interests.

To be sure, then, *Algorithms of Oppression* provides a truly multidimensional analysis of the significance of the search technology, embedding it in the social context from which it has been abstracted. Consequently, the algorithmic search and decision-making are implicated in the reproduction of racist, sexist and capitalist power relations. Yet, Noble's complex account is written in an accessible and engaging language. This stylistic willingness to reach beyond the academia makes the book not only a piece of excellent scholarship but also a trigger for the public debate and, hopefully, social change. However, it also imposes certain limitations on the scope of the discussion.

Thus, while the initial focus on the US is understandable, the global dimension of the 'algorithmic turn' should be fleshed out. After all, tech giants are *the* global companies of today, whose operations have profound consequences for lives of people all around the world. *Algorithms of Oppression* contains a cursory discussion on the digital privacy laws in the EU and a mention of the exploitation suffered by racialised populations in the production chain of tech industry. Global implications of algorithmic oppression, however, merit a much more extensive treatment that would engage more scholarship from outside the Anglophonic countries. Still, Noble's book is a foundational one: it opens up an avenue of research and proposes an approach to studying it. Future research will be there to broaden and deepen the way that Noble paved.